

IN THE CLAIMS:

Please cancel Claims 3, 10, 16, and 20, without prejudice or disclaimer of subject matter. Please amend Claims 1, 2, 4-9, 11, 12, 14, 15, and 17-19, as indicated below. The following is a complete listing of claims and replaces all prior versions and listings of claims in the present application:

1. (Currently Amended) A moving image coding apparatus ~~[[which]]~~ that sequentially inputs and codes image data of frames constituting a moving image, the apparatus comprising:

a mode selection ~~means for~~ unit that adaptively selects ~~selecting~~, for each frame, either a first coding mode using inter-frame correlation ~~[[and]]~~ or a second coding mode of coding a frame separately;

a storage unit that stores a frame image;

a segmentation ~~means for segmenting~~ unit that segments image data of an input frame into a plurality of blocks;

a decoding ~~means for~~ unit that locally ~~decoding~~ decodes coded image data in accordance with an output from said mode selection unit and stores the coded image data into said storage unit ~~means~~;

a computation ~~means for extracting predicted data~~ unit that (i) extracts, from a ~~locally decoded~~ previous frame ~~on the basis~~ that has been locally decoded and stored in said storage unit by said decoding unit, predicted data of a block image obtained by segmentation by said segmentation ~~[[means]]~~ unit and outputting ~~outputs~~ a block obtained by subtracting the predicted data from the segmented block image, if the mode selected by said mode selection unit is ~~[[in]]~~ the first coding mode, ~~and outputting a~~ or (ii) outputs the block segmented by said

segmentation ~~means in~~ unit, if the mode selected by said mode selection unit is the second coding mode;

a transformation means for transforming unit that transforms the block obtained by said computation ~~[[means]]~~ unit into spatial frequency component data;

a code data generating means for generating intermediate code data unit that encodes the spatial frequency component data for each bitplane to generate code data for each bitplane comprising bit information at each bit position which represents each frequency component value obtained by transformation;

an adjusting means for adjusting unit that adjusts a code data amount by discarding code data corresponding to bitplanes from a least significant bit position to a predetermined bit position ~~rounding down code data of desired bitplanes of generated code data from a least significant bit position to an upper bit position;~~ and

an output means for outputting unit that outputs remaining code data ~~adjusted by~~ from said adjusting unit as the code data of the segmented block means.

2. (Currently Amended) The apparatus according to claim 1, wherein said decoding ~~[[means]]~~ unit locally decodes only image data coded in the second coding mode.

3. (Canceled)

4. (Currently Amended) The apparatus according to claim 1, wherein said transformation unit performs ~~means comprises~~ discrete wavelet transformation.

5. (Currently Amended) The apparatus according to claim 1, further comprising an instruction means for instructing unit that instructs whether ~~or not to round down~~ discard code data of bitplanes by ~~using~~ said adjusting unit means.

6. (Currently Amended) The apparatus according to claim 1, wherein said mode selection ~~[[means]]~~ unit selects the second coding mode for a frame which is input for the first time after ~~[[the]]~~ a number of input frames becomes a predetermined number.

7. (Currently Amended) The apparatus according to claim 1, wherein said decoding ~~[[means]]~~ unit performs bit-shifting of the code data by a number of discarded bitplanes by said adjusting unit and locally decodes the bit-shifted code data adjusted by said adjusting means.

8. (Currently Amended) A control method for a moving image coding apparatus ~~[[which]]~~ that includes a computer processor and a storage unit storing a frame image and sequentially inputs and codes image data of frames constituting a moving image, the method comprising:

a mode selection step of adaptively selecting, for each frame, either a first coding mode using inter-frame correlation ~~[[and]]~~ or a second coding mode of coding a frame separately;

a segmentation step of segmenting image data of an input frame into a plurality of blocks;

a decoding step of locally decoding coded image data in accordance with an output in the mode selection step and storing the decoded image data into the storage unit;

a computation step of (i) extracting, ~~predicted data~~ from a ~~locally decoded~~ previous frame that has been locally decoded and stored in the storage unit in said decoding step, ~~predicted data~~ on the basis of a block image obtained by segmentation in the segmentation step and outputting a block obtained by subtracting the predicted data from the segmented block image, if the mode selected in said mode selection step is [[in]] the first coding mode, [[and]] or (ii) outputting [[a]] the block segmented in the segmentation step, if the mode selected in said mode selection step is [[in]] the second coding mode;

a transformation step of transforming the block obtained in the computation step into spatial frequency component data;

a code data generating step of ~~generating intermediate code data~~ encoding the spatial frequency component data for each bitplane to generate code data for each bitplane ~~comprising bit information at each bit position which represents each frequency component value obtained by transformation;~~

an adjusting step of adjusting a code data amount by discarding code data corresponding to bitplanes from a least significant bit position to a predetermined bit position ~~rounding down code data of desired bitplanes of generated code data from a least significant bit position to an upper bit position;~~ and

an output step of outputting remaining code data from ~~adjusted in~~ the adjusting step as the code data of the segmented block, wherein the output step is performed, at least in part, by the computer processor.

9. (Currently Amended) A computer-readable storage medium storing a computer-executable program that, when executed by a computer, causes the computer to perform a method of controlling ~~which functions as~~ a moving image coding apparatus ~~[[which]]~~

that includes a storage unit storing a frame image and sequentially inputs and codes frames constituting a moving image by being read and executed by a computer, the method comprising wherein the computer program functions as:

a mode selection means for step of adaptively selecting, for each frame, either a first coding mode using inter-frame correlation [[and]] or a second coding mode of coding a frame separately;

a segmentation means for step of segmenting image data of an input frame into a plurality of blocks;

a decoding means for step of locally decoding coded image data in accordance with an output from the mode selection step and storing the coded image data into the storage unit means;

a computation means for step of (i) extracting, ~~predicted data~~ from a ~~locally decoded~~ previous frame that has been locally decoded and stored in the storage unit in said decoding step, predicted data on the basis of a block image obtained by segmentation [[by]] in the segmentation [[means]] step and outputting a block obtained by subtracting the predicted data from the segmented block image, if the mode selected in said mode selection step is [[in]] the first coding mode, [[and]] or (ii) outputting [[a]] the block segmented [[by]] in the segmentation [[means]] step, if the mode selected in said mode selection step is [[in]] the second coding mode;

a transformation means for step of transforming the block obtained [[by]] in the computation [[means]] step into spatial frequency component data;

a code data generating means for ~~generating intermediate code data~~ step of encoding the spatial frequency component data for each bitplane to generate code data for each

~~bitplane comprising bit information at each bit position which represents each frequency component value obtained by transformation;~~

~~an adjusting means for step of adjusting a code data amount by discarding code data corresponding to bitplanes from a least significant bit position to a predetermined bit position rounding down code data of desired bitplanes of generated code data from a least significant bit position to an upper bit position; and~~

~~an output means for step of outputting remaining code data adjusted by in the adjusting step as the code data of the segmented block means.~~

10. (Canceled)

11. (Currently Amended) A moving image coding apparatus [[which]] that sequentially inputs and codes image data of frames constituting a moving image, the apparatus comprising:

a mode selection means for unit that adaptively ~~selecting~~ selects, for each frame, either a first coding mode using inter-frame correlation [[and]] or a second coding mode of coding a frame separately;

a segmentation means for segmenting unit that segments image data of an input frame into a plurality of blocks;

a storage means for storing unit that stores at least one-frame image data;

a computation means for unit that (i), when the first coding mode is selected by said mode selection unit, extracts means, extracting predicted data of a block image obtained by said segmentation unit from image data stored in said storage unit and outputs means, on the basis of a block image obtained by segmentation by said segmentation means, and outputting a

difference between the extracted predicted data and the block image, ~~[[and]] or (ii)~~, when the second coding mode is selected by said mode selection unit, ~~outputs the means, outputting a~~ block image segmented by said segmentation unit ~~means~~;

~~a transformation means for transforming~~ unit that transforms a block output from said computation ~~[[means]]~~ unit into spatial frequency component data;

~~a coding means for performing~~ unit that performs coding of the spatial frequency component data for each bitplane ~~formed by bit information at each bit position representing each frequency component value obtained by said transformation means~~;

~~an updating means for updating~~ unit that updates, if the second coding mode is selected by said mode selection unit, said storage ~~[[means]]~~ unit with image data obtained by locally decoding code data generated by said coding unit ~~means when the second coding mode is selected by said mode selection means~~.

12. (Currently Amended) The apparatus according to claim 11, wherein said coding ~~[[means]]~~ unit outputs code data $C(N_{\max})$, $C(N_{\max} - 1)$,..., $C(N_{\max} - k)$ as effective code data up to a maximum value k satisfying

$$\sum L(C(N_{\max} - k)) \leq T$$

where N_{\max} is a bit position of a most significant bitplane, $C(i)$ is code data of $n(0 \leq n \leq N_{\max})$ th bitplane, $L(C(i))$ is a code data amount, and T is a threshold representing an allowable code amount of one frame, and discards code data $C(0)$,..., $C(N_{\max} - k - 1)$.

13. (Previously Presented) The apparatus according to claim 12, wherein the threshold T differs in the first coding mode and the second coding mode.

14. (Currently Amended) A control method for a moving image coding apparatus [[which]] that includes a computer processor and a storage means for unit storing at least one-frame image data, and sequentially inputs and codes image data of frames constituting a moving image, the method comprising:

a mode selection step of adaptively selecting, for each frame, either a first coding mode using inter-frame correlation [[and]] or a second coding mode of coding a frame separately;

a segmentation step of segmenting image data of an input frame into a plurality of blocks;

a computation step of (i), when the first coding mode is selected in the mode selection step, extracting predicted data of a block image obtained in said segmentation step from image data stored in the storage unit means, ~~on the basis of a block image obtained by segmentation in the segmentation step~~, and outputting a difference between the extracted predicted data and the block image, [[and]] or (ii), when the second coding mode is selected in the mode selection step, outputting [[a]] the block image segmented in the segmentation step;

a transformation step of transforming a block output in the computation step into spatial frequency component data;

a coding step of performing coding of the spatial frequency component data for each bitplane ~~formed by bit information at each bit position representing each frequency component value obtained in the transformation step~~; and

an updating step for updating, if the second coding mode is selected in said mode selection step, the storage [[means]] unit with image data obtained by locally decoding code data generated in the coding step, wherein the updating step is performed, at least in part, by the computer processor ~~when the second coding mode is selected in the mode selection step~~.

15. (Currently Amended) A computer-readable storage medium storing a computer-executable program that, when executed by a computer, causes the computer to perform a method of controlling [[for]] a moving image coding apparatus [[which]] that includes a storage means for unit storing at least one-frame image data, and sequentially inputs and codes image data of frames constituting a moving image, the method comprising wherein the computer program functions as:

a mode selection means for step of adaptively selecting, for each frame, either a first coding mode using inter-frame correlation [[and]] or a second coding mode of coding a frame separately;

a segmentation means for step of segmenting image data of an input frame into a plurality of blocks;

a computation means for, step of (i) extracting, when the first coding mode is selected [[by]] in the mode selection step means, extracting predicted data of a block image obtained in said segmentation step from image data stored in the storage unit means, on the basis of a block image obtained by segmentation by the segmentation means; and outputting a difference between the extracted predicted data and the block image, [[and]] or (ii), when the second coding mode is selected [[by]] in the mode selection step means, outputting [[a]] the block image segmented [[by]] in the segmentation step means;

a transformation means for step of transforming a block output [[from]] in the computation step means into spatial frequency component data;

a coding means for step of performing coding of the spatial frequency component data for each bitplane formed by bit information at each bit position representing each frequency component value obtained by the transformation means; and

~~an updating means for step of updating, if the second coding mode is selected in said mode selection step, the storage [[means]] unit with image data obtained by locally decoding code data generated[[- by]] in the coding step means when the second coding mode is selected by the mode selection means.~~

16. (Canceled)

17. (Currently Amended) A moving image decoding apparatus [[which]] that decodes coded moving image data, the apparatus comprising:

a storage means for storing unit that stores at least one-frame image data;

a determination means for determining unit that determines, based on the basis of input code data, whether ~~a frame~~ code data of interest is code data based on a first coding mode using inter-frame correlation or ~~code data~~ based on a second coding mode of coding a frame separately;

a decoding means for decoding unit that decodes the code data of ~~the frame of~~ interest;

an addition means for, unit that (i), when said determination [[means]] unit determines that the [[frame]] code data of interest is code data based on the first coding mode, ~~regarding regards~~ a decoding result obtained by said decoding [[means]] unit as difference image data, and ~~generating generates~~ a frame image by adding image data stored in said storage [[means]] unit to the difference image data, [[and]] or (ii), when said determination [[means]] unit determines that determines that the [[frame]] code data of interest is code data based on the second coding mode, ~~outputting outputs~~ a decoding result by said decoding unit as a frame image; and

an updating means for updating unit that updates, if said determination unit determines that the code data of interest is code data based on the second coding mode, said storage [[means]] unit with the frame image output from said addition [[means]] unit when said determination means determines that the frame of interest is code data based on the second coding mode.

18. (Currently Amended) A control method for a moving image decoding ~~decoding~~, apparatus [[which]] that includes a computer processor and a storage means for unit storing at least one-frame image data and decodes coded moving image data, the method comprising:

a determination step of determining based on the basis of input code data whether a frame code data of interest is code data based on a first coding mode using inter-frame correlation or ~~code data~~ based on a second coding mode of coding a frame separately;

a decoding step of decoding code data of ~~the frame of~~ interest;

an addition step of (i), when ~~it is determined~~ a determination is made in the determination step that the [[frame]] code data of interest is code data based on the first coding mode, regarding a decoding result obtained in the decoding step as difference image data, and generating a frame image by adding image data stored in the storage [[means]] unit to the difference image data, [[and]] or (ii), when ~~it is determined~~ a determination is made in the determination step that the [[frame]] code data of interest is code data based on the second coding mode, outputting a decoding result in said decoding step as a frame image; and

an updating step of updating, if a determination is made in said determination step that the frame of interest is code data based on the second coding mode, the storage [[means]] unit with the frame image output in the addition step, wherein said updating step is performed, at

least in part, by the computer processor ~~when it is determined in the determination step that the~~
~~frame of interest is code data based on the second coding mode.~~

19. (Currently Amended) A computer-readable storage medium storing a
computer-executable program that, when executed by a computer, causes the computer to
perform a method of ~~[[for]]~~ controlling a moving image decoding apparatus ~~[[which]]~~ that
includes a storage means for unit storing at least one-frame image data and decodes coded
moving image data, the method comprising ~~wherein the computer program functions as:~~

a determination means for step of determining based on the basis of input code
data whether ~~a frame~~ code data of interest is code data based on a first coding mode using inter-
frame correlation or ~~code data~~ based on a second coding mode of coding a frame separately;

a decoding means for step of decoding code data ~~of the frame~~ of interest;

an addition means for, step of (i), when a determination is made in the
determination ~~means determines~~ step that the ~~[[frame]]~~ code data of interest is code data based
on the first coding mode, regarding a decoding result obtained ~~[[by]]~~ in the decoding ~~[[means]]~~
step as difference image data, ~~[[and]]~~ or (ii), generating a frame image by adding image data
stored in the storage ~~[[means]]~~ unit to the difference image data, and when ~~[[the]]~~ a
determination, ~~means determines~~ is made in said determination step that the ~~[[frame]]~~ code data
of interest is code data based on the second coding mode, outputting a decoding result in said
decoding step as a frame image; and

updating means for step of updating, if a determination is made in said
determination step that the frame of interest is code data based on the second coding mode, the
storage ~~[[means]]~~ unit with the frame image output ~~[[from]]~~ in the addition step ~~means when the~~

~~determination means determines that the frame of interest is code data based on the second ceding mode.~~

20. (Canceled)